What is claimed is:

1. A method of multi-mode RF communications, comprising:

during a first timeslot, transmitting a first communications signal in accordance with one of a first communications standard using constant-envelope modulation and a second communications standard using varying-envelope modulation;

ramping down the first communications signal at the end of the first timeslot; and

during a second adjacent timeslot, ramping up a second communications signal and transmitting the same in accordance with a different one of said first communications standard and said second communications standard.

2. The method of Claim 1, comprising independently setting a power level of the communications signal in the first and second timeslots.

3. The method of Claim 1, comprising:

if the first communications signal is not a constant-envelope signal having only a phase component, converting the first communications signal to obtain a phase component thereof and a magnitude component thereof; and

if the second communications signal is not a constant-envelope signal having only a phase component, converting the second communications signal to obtain a phase component thereof and a magnitude component thereof.

4. The method of Claim 3, comprising:

if the first communications signal is a constant-envelope having

only a phase component, providing a stored-value ramp generator for the first communications signal, the ramp generator generating a ramp signal for the first communications signal; and

if the second communications signal is a constant-envelope signal having only a phase component, providing a stored-value ramp generator for the second communications signal, the ramp generator generating a ramp signal for the second communications signal.

5. The method of Claim 4, comprising:

providing an AM/PM correction table; and

applying the phase components of the first communications signal and the second communications signal to the AM/PM correction table to obtain first and second corrected phase components.

6. The method of Claim 5, comprising:

providing an AM/AM correction table; and

applying the magnitude components of or ramp signals for the first communications signal and the second communications signal to the AM/AM correction table to obtain first and second corrected magnitude components.

7. The method of Claim 6, comprising:

during the first time slot:

driving a magnitude port of an amplification chain based on the first corrected magnitude component using a magnitude driver circuit; and

driving a phase port of the amplification chain based on the first corrected phase component using a phase driver circuit; and

during the second time slot:

driving a magnitude port of an amplification chain based on the second corrected magnitude component using the magnitude driver circuit; and

driving a phase port of the amplification chain based on the second corrected phase component using the phase driver circuit.

8. The method of Claim 7, wherein the phase driver circuit includes a VCO.

9. The method of Claim 7, wherein the phase driver circuit includes a phase-stable frequency locked loop.

10. The method of Claim 6, comprising:

performing time alignment of the corrected magnitude component and the corrected phase component of the first communications signal to produce a time-aligned, corrected magnitude component and a time-aligned, corrected phase component of the first communications signal; and

performing time alignment of the corrected magnitude component and the corrected phase component of the second communications signal to produce a time-aligned, corrected magnitude component and a time-aligned, corrected phase component of the second communications signal.

11. The method of Claim 1, wherein the constant-envelope modulation is GMSK, and a GMSK signal is formed.

12. The method of Claim 11, wherein a ramp shape for the GMSK signal is determined in accordance with a pulse shape used to generate a communications signal in accordance with the EDGE standard.

13. The method of Claim 11, wherein the varying-envelope modulation is QAM, the second communications standard is EDGE, and an EDGE signal is formed.

14. The method of Claim 13, wherein a ramp shape for the EDGE signal is obtained by:

adding a predetermined sequence of symbols to a sequence of information symbols to be communicated to form an augmented sequence of symbols; and

performing modulation of the augmented sequence of symbols to produce an envelope signal that exhibits a desired ramp profile.

15. The method of Claim 1, wherein the varying-envelope modulation is QAM, and the second communications standard is EDGE, and an EDGE signal is formed.

16. The method of Claim 15, wherein a ramp shape for the EDGE signal is obtained by:

adding a predetermined sequence of symbols to a sequence of information symbols to be communicated to form an augmented sequence of symbols; and

performing modulation of the augmented sequence of symbols to produce an envelope signal that exhibits a desired ramp profile.

17. The method of Claim 15, wherein the constant-envelope modulation is GMSK, and a GMSK signal is formed.

18. The method of Claim 17, wherein a ramp shape for the GMSK signal is determined in accordance with a pulse shape used to generate a communications signal in accordance with the EDGE standard.

19. An apparatus for multi-mode RF communications, comprising:

means for, during a first timeslot, transmitting a first communications signal in accordance with one of a first communications standard using constant-envelope modulation and a second communications standard using varying-envelope modulation;

means for ramping down the first communications signal at the end of the first timeslot; and

means for, during a next adjacent timeslot, ramping up a second communications signal and transmitting the same in accordance with a different one of said first communications standard and said second communications standard.

20. The apparatus of Claim 19, comprising means for independently setting a power level of the communications signal in the first and second timeslots.

21. The apparatus of Claim 19, comprising means for converting a communications signal that is not a constant-envelope signal having only a phase component to obtain a phase component thereof and a magnitude component thereof.

22. The apparatus of Claim 21, comprising a stored-value ramp generator for generating a ramp signal for one of the first communications signal and the second communications signal.

23. The apparatus of Claim 22, comprising:

an AM/PM correction table, the phase components of the first communications signal and the second communications signal being applied to the AM/PM correction table to obtain first and second corrected phase components.

24. The apparatus of Claim 23, comprising:

an AM/PM correction table, the magnitude components of or ramp signals for the first communications signal and the second communications signal being applied to the AM/AM correction table to obtain first and second corrected magnitude components.

25. The apparatus of Claim 24, comprising:

an amplification chain having a magnitude port and a phase port;

a magnitude driver circuit responsive to the first and second corrected magnitude components for driving the magnitude port of the amplification chain; and

a phase driver circuit responsive to the first and second corrected phase components for driving the phase port of the amplification chain.

26. The apparatus of Claim 25, wherein the phase driver circuit includes a VCO.

27. The apparatus of Claim 25, wherein the phase driver circuit includes a phase-stable frequency locked loop.

28. The apparatus of Claim 24, comprising:

means for performing time alignment of the corrected magnitude components and the corrected phase components of the communications signals to produce for each communications signal a time-aligned, corrected magnitude component and a time-aligned, corrected phase component.

29. The apparatus of Claim 19, wherein the constant-envelope modulation is GMSK, and a GMSK signal is formed.

30. The apparatus of Claim 29, wherein a ramp shape for the GMSK signal is determined in accordance with a pulse shape used to generate a communications signal in accordance with the EDGE standard.

31. The apparatus of Claim 29, wherein the varying-envelope modulation is QAM, and the second communications standard is EDGE, and an EDGE signal is formed.

32. The apparatus of Claim 31, comprising:

means for adding a predetermined sequence of symbols to a sequence of information symbols to be communicated to form an augmented sequence of symbols; and

a modulator for performing modulation of the augmented sequence of symbols to produce an envelope signal that exhibits a desired ramp profile;

whereby a ramp shape for the EDGE signal is obtained.

33. The apparatus of Claim 19, wherein the varying-envelope modulation is QAM, and the second communications standard is EDGE, and an EDGE signal is formed.

34. The apparatus of Claim 33, comprising:

means for adding a predetermined sequence of symbols to a sequence of information symbols to be communicated to form an augmented sequence of symbols; and

a modulator for performing modulation of the augmented sequence of symbols to produce an envelope signal that exhibits a desired ramp profile;

whereby a ramp shape for the EDGE signal is obtained.

35. The apparatus of Claim 33, wherein the constant-envelope modulation is GMSK, and a GMSK signal is formed.

36. The apparatus of Claim 35, wherein a ramp shape for the GMSK signal is determined in accordance with a pulse shape used to generate a communications signal in accordance with the EDGE standard.

37. A multi-mode communications signal processor, comprising:

mode selection means for selecting a desired communications standard;

multiple signal generators each corresponding to a different communications standard;

a digital phase modulator responsive to the mode selection means and to a selected one of the digital signal generators for generating a control signal to control a communications-frequency element; and

switching means responsive to the mode selection means for coupling to the digital phase modulator the selected one of the digital signal generators.

38. The apparatus of Claim 37, wherein the communications-frequency element is a voltage-controlled oscillator.

39. The apparatus of Claim 37, wherein the digital phase modulator comprises a phase-stable frequency locked loop.

40. The apparatus of Claim 37, comprising means coupled to one of the pulse modulators for augmenting a symbol sequence to form an augmented symbol sequence that, when processed by the one pulse modulator, causes an output signal of the pulse modulator to follow a ramp profile during a ramp period.

41. The apparatus of Claim 37, wherein the multi-mode communications signal processor is a polar architecture multi-mode communications signal generator having separate amplitude and phase path, a phase path including the digital phase modulator.

42. The apparatus of Claim 41, comprising time alignment means for performing time alignment between amplitude information carried by the amplitude path and phase information carried by the phase path.

43. The apparatus of Claim 42, wherein the amplitude path includes a driver circuit responsive to the amplitude information and to a power level signal for producing at least one drive signal for a communications signal amplifier.

44. The apparatus of Claim 43, wherein the driver circuit produces multiple drive signals for multiple respective stages of the communications signal amplifier.

45. The apparatus of Claim 42, comprising at least one of amplitude correction means for correcting the amplitude information to correct for non-idealities of a communications signal amplifier and phase correction means for correcting the phase information to correct for non-idealities of the communications signal amplifier.

46. The apparatus of Claim 45, comprising both said amplitude correction means and said phase correction means.

47. The apparatus of Claim 41, comprising a circuit, coupled to at least one of the pulse modulators, for converting a signal having both amplitude and phase components into separate amplitude and phase signals, the separate amplitude and phase paths being coupled to the amplitude and phase paths, respectively.

48. The apparatus of Claim 41, comprising a ramp generator storing a ramp profile for a communication standard using constant-envelope modulation.

49. The apparatus of Claim 48, comprising switching means responsive to the mode selection means for coupling to the amplitude path one of the ramp generator and a selected one of the digital pulse modulators.

50. The apparatus of Claim 37, wherein the multi-mode communications processor is formed on a single monolithic integrated circuit.

51. A method of shaping a communications signal during a transistion period between a first zero or non-zero power level and a second non-zero power level, wherein, during a non-transition period, the communications signal is formed using a pulse shaping filter based on a predetermined pulse shape, the method comprising:

deriving from the predetermined pulse shape a ramp shape; and

ramping the communications signal between the first and second power levels in accordance with the ramp shape.

52. The method of Claim 51, wherein power spectral density during the transition period is approximately the same as power spectral density during the non-transistion period.

53. The method of Claim 51, wherein the communications signal is a TDMA communications signal.

54. The method of Claim 51, wherein the communications signal is a CDMA communications signal.

55. A communications transmitter comprising:

means for generating a communications signal using a pulse shap-

ing filter based on a predetermined pulse shape; and

means for ramping the communications signal between a first zero or non-zero power level and a second non-zero power level in accordance with a ramp shape derived from the predetermined pulse shape.

56. The apparatus of Claim 55, further comprising means for amplifying the communications signal.

57. The apparatus of Claim 56, wherein the means for amplifying comprises a single control path combining both phase control path and magnitude control.

58. The apparatus of Claim 56, wherein the means for amplifying comprises a phase control path and a separate magnitude control path.

59. The apparatus of Claim 55, wherein the means for ramping comprises an Nth order accumulator.